

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

**1 - 42. (Canceled)**

**43. (Currently Amended)** A process~~Process~~ for producing a layer system for the protection against wear, for the protection against corrosion and for improving the sliding properties, having an adhesive layer for the arrangement on a substrate, a transition layer for the arrangement on the adhesive layer and a cover layer of an adamantine carbon,

comprising

a) charging the substrate into a vacuum chamber and pumping down to a vacuum of a pressure of less than  $10^{-4}$  mbar, preferably  $10^{-5}$  mbar,

b) cleaning a surface of the substrate,

c) plasma-aided vapor-depositing of the adhesive layer on the substrate,

d) applying the transition layer to the adhesion layer by simultaneous plasma-aided vapor depositing of adhesion layer constituents and depositing carbon from the gas phase,

e) applying the adamantine carbon layer on the transition layer by a plasma-aided depositing of carbon from the gas phase, wherein

at least during process steps c), d) and e), a substrate bias voltage is applied to the substrate, and at least during process steps d) and e), the plasma is stabilized by a magnetic field, the vapor depositing of the adhesive later is aided by an additional pulsed substrate bias voltage in a medium frequency range of from 1 to 10,000 kHz, and during at least one of the cleaning of the surface and the application of the adhesive layer and the application of transition layer and the application of cover layer made of an adamantine carbon, a longitudinal magnetic field with a uniform line of flux course is superimposed on the substrate, and the magnetic field being variable continuously or in steps with respect to at least one of time and space.

**44. (Currently Amended)** The process~~Process~~ according to claim 43, the cleaning of the substrate surface comprises at least one of a heating step and an etching step.

**45. (Currently Amended)** The process~~Process~~ according to claim 44, wherein the heating step takes place by at least one of radiant heating, inductive heating and by electron bombardment.

**46. (Currently Amended)** The process~~Process~~ according to claim 45, wherein the electron bombardment is caused by the ignition of a low-voltage arc

and the simultaneous application of a continuous AC or AC superimposed bias voltage, as particularly a pulsed positive substrate bias voltage.

**47. (Currently Amended)** The process~~Process~~ according to claim 44, wherein the etching step is carried out by ion etching, by means of at least one of a noble gas and hydrogen as the process gas, a low-voltage arc being ignited and a continuous negative substrate bias voltage being applied to the substrate.

**48. (Currently Amended)** The process~~Process~~ according to claim 44, wherein the etching step is carried out by ion etching by means of at least one of a noble gas and hydrogen as a process gas, and an AC or AC superimposed substrate bias voltage, being applied.

**49. (Currently Amended)** The process~~Process~~ according to claim 44, wherein the vapor depositing of the adhesive layer takes place one of by PVD processes, plasma CVD processes, cathodic sputtering and evaporation out of crucible by means of a low voltage arc.

**50. (Currently Amended)** The process~~Process~~ according to claim 49, wherein the vapor depositing of the adhesive layer is aided by an additional low-

voltage arc discharge and a negative substrate bias voltage is applied to the substrate.

**51. (Canceled)**

**52. (Currently Amended)** The process~~Process~~ according to claim 43, wherein, for the ignition of a plasma, a noble gas or a noble gas/hydrogen mixture, is fed into the vacuum chamber.

**53. (Currently Amended)** The process~~Process~~ according to claim 43, wherein the transition layer is formed by an isochronous vapor depositing of at least one element from the Group which contains the elements from the 4th, 5th and 6th Subgroup and silicon, and a plasma-aided depositing of carbon from the gas phase, additionally, a carbon-containing gas, being used as the reaction gas.

**54. (Currently Amended)** The process~~Process~~ according claim 53, wherein, as the thickness of the transition layer increases, the fraction of the carbon depositing is increased continuously or in steps.

**55. (Currently Amended)** The process~~Process~~ according to claim 43 wherein, the adamantine carbon layer forming the cover layer is generated by

the plasma CVD deposition of carbon from the gas phase with a carbon-containing gas being used as the reaction gas.

**56. (Currently Amended)** The process~~Process~~ according to claim 53, wherein the reaction gas for depositing carbon, in addition to the carbon-containing gas, comprises at least one hydrogen and a noble gas.

**57. (Currently Amended)** The process~~Process~~ according to claim 56, wherein, during the depositing of the cover layer made of adamantane carbon, at least one of the fraction of the carbon-containing gas is increased and the fraction of the noble gas is lowered.

**58. (Currently Amended)** The process~~Process~~ according to claim 43, wherein a unipolar or bipolar substrate bias voltage is applied to the substrate, which is pulsed in a medium frequency range of from 1 to 10,000 kHz.

**59. (Currently Amended)** The process~~Process~~ according to claim 58, wherein the substrate bias voltage is sinusoidal or is pulsed such that long negative and short positive pulse periods or large negative and low positive amplitudes are applied.

**60. (Canceled)**

**61. (Currently Amended)** The process~~Process~~ according to claim 43, wherein said at least one of the application of the adhesive layer and the transition layer and the cover layer of adamantine carbon takes place at a pressure of from  $10^{-4}$  mbar to  $10^{-2}$  mbar.

**62. – 76. (Canceled)**

**77. (New)** The process according to claim 43, wherein the substrate surface cleaning comprises removing volatiles from the substrate surface.

**78. (New)** The process according to claim 43, wherein the substrate surface cleaning comprises igniting a noble gas plasma.